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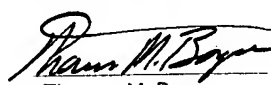
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February 26, 2002

FILE: CLFR:010US

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Commissioner for Patents  
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RE: SN 10/010,081 "METHODS AND COMPOSITIONS RELATING TO IMPROVED  
LENTIVIRAL VECTORS AND THEIR APPLICATIONS" – Didier Trono and Patrick  
Salmon

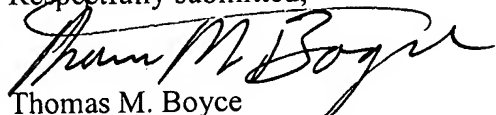
Sir:

Enclosed for filing in the above-referenced patent application is an Information Disclosure Statement, Form PTO-1449, and references (A1-A13, C1-C47).

No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to the enclosed materials, the Commissioner is hereby authorized to deduct said fees from Fulbright & Jaworski Deposit Account No.: 50-1212/10110677/TMB.

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Respectfully submitted,



Thomas M. Boyce  
Reg. No. 43,508

TMB/cmb

Encl: as noted

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  
Didier Trono  
Patrick Salmon



Serial No.: 10/010,081

Filed: November 9, 2001

For: METHODS AND COMPOSITIONS  
RELATING TO IMPROVED  
LENTIVIRAL VECTORS AND THEIR  
APPLICATIONS

Group Art Unit: Unknown

Examiner: Unknown

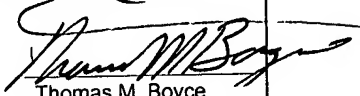
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Thomas M. Boyce

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
Washington, D.C. 20231

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

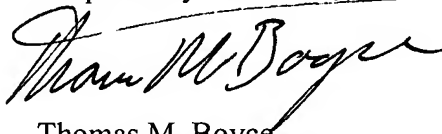
In accordance with 37 C.F.R §§ 1.97(g), (h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be

an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

The present Information Disclosure Statement is being filed prior to the receipt of a first Official Action reflecting an examination on the merits, and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Commissioner is hereby authorized to deduct said fees from Fulbright & Jaworski Deposit Account No.: 50-1212/10110677/TMB.

Applicants respectfully request that the listed documents be made of record in the present case.

Respectfully submitted,



Thomas M. Boyce  
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Attorney for Applicants

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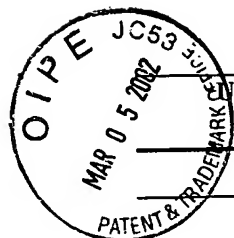
Form PTO-1449 (modified)

Atty. Docket No.  
CLFR:010US/TMBSerial No.  
10/010,081

List of Patents and Publications for Applicant's

## INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Applicant  
Didier Trono  
Patrick SalmonFiling Date:  
November 9, 2001Group:  
UnknownU.S. Patent Documents  
See Page 1Foreign Patent Documents  
See Page 1Other Art  
See Page 1

## U.S. Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date of App.
	A1	5,686,279	11/11/97	Finer <i>et al.</i>	435	172.3	6/10/94
	A2	5,994,136	11/30/99	Naldini <i>et al.</i>	435	455	12/12/97
	A3	6,013,516	1/11/00	Verma <i>et al.</i>	435	325	10/6/95
	A4	6,017,758	1/25/00	Haselton, III <i>et al.</i>	435	325	2/20/98
	A5	6,084,063	7/4/00	Vonakis <i>et al.</i>	530	324	2/6/98
	A6	6,136,597	10/24/00	Hope <i>et al.</i>	435	325	9/18/97
	A7	6,165,782	12/26/00	Naldini <i>et al.</i>	435	320.1	3/18/99
	A8	6,207,455 B1	3/27/01	Chang	435	457	9/22/97
	A9	6,218,181 B1	4/17/01	Verma <i>et al.</i>	435	369	9/3/98
	A10	6,218,186 B1	4/17/01	Choi <i>et al.</i>	435	456	4/17/01
	A11	6,242,258 B1	6/5/01	Haselton, III <i>et al.</i>	435	455	1/5/00
	A12	6,271,359 B1	8/7/01	Norris <i>et al.</i>	536	23.1	4/14/99
	A13	6,277,633 B1	8/21/01	Olsen	435	320.1	5/12/98

## Foreign Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Country	Class	Sub Class	Translation Yes/No

## Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C1	Akkina <i>et al.</i> , "High-efficiency gene transfer into CD34+ cells with a human immunodeficiency virus type 1-based retroviral vector pseudotyped with vesicular stomatitis virus envelope glycoprotein G," <i>J. Virol.</i> , 70:2581-2585, 1996.

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Exam. Init.	Ref. Des.	Citation
	C2	An <i>et al.</i> , "Marking and gene expression by a lentivirus vector in transplanted human and nonhuman primate CD34(+) cells," <i>J. Virol.</i> , 74:1286-1295, 2000.
	C3	Arrighi <i>et al.</i> , "Long-term culture of human CD34(+) progenitors with FLT3-ligand, thrombopoietin, and stem cell factor induces extensive amplification of a CD34(-)CD14(-) and CD34(-)CD14(+) dendritic cell precursor," <i>Blood</i> , 93:2244-2252, 1999.
	C4	Berkhout <i>et al.</i> , "Tat Trans-activates the Human Immunodeficiency Virus Through a Nascent RNA Target," <i>Cell</i> , 59:273-282, 1989.
	C5	Bhatia <i>et al.</i> , "Quantitative analysis reveals expansion of human hematopoietic repopulating cells after short-term <i>ex vivo</i> culture," <i>J. Exp. Med.</i> , 186:619-624, 1997.
	C6	Blömer <i>et al.</i> , "Highly efficient and sustained gene transfer in adult neurons with a lentivirus vector," <i>J. Virol.</i> , 71:6641-6649, 1997.
	C7	Brown <i>et al.</i> , "Efficient polyadenylation within the human immunodeficiency virus type 1 long terminal repeat requires flanking U3-specific sequences," <i>J. Virol.</i> , 65:3340-3343, 1991.
	C8	Carbonelli <i>et al.</i> , "A plasmid vector for isolation of strong promoters in <i>E. coli</i> ," <i>FEMS Microbiol Lett.</i> 177(1):75-82, 1999.
	C9	Case <i>et al.</i> , "Stable transduction of quiescent CD34(+)CD38(-) human hematopoietic cells by HIV-1 based lentiviral vectors," <i>Proc. Natl. Acad. Sci. USA</i> , 96:2988-2993, 1999.
	C10	Chandler <i>et al.</i> , "RNA splicing specificity determined by the coordinated action of RNA recognition motifs in SR proteins," <i>Proc Natl Acad Sci U S A.</i> 94(8):3596-3601, 1997.
	C11	Cherrington and Ganem, "Regulation of polyadenylation in human immunodeficiency virus (HIV): contributions of promoter proximity and upstream sequences," <i>Embo. J.</i> , 11:1513-1524, 1992.
	C12	Cocea, "Duplication of a region in the multiple cloning site of a plasmid vector to enhance cloning-mediated addition of restriction sites to a DNA fragment," <i>Biotechniques</i> , 23:814-816, 1997
	C13	Corbeau, <i>et al.</i> , "Efficient gene transfer by a human immunodeficiency virus type 1 (HIV-1)-derived vector utilizing a stable HIV packaging cell line," <i>PNAS U.S.A.</i> , 93(24):14070-14075, 1996.

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INFORMATION DISCLOSURE STATEMENT — PTO-1449 (MODIFIED)

Form PTO-1449 (modified)

Atty. Docket No.

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Patrick Salmon

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Exam. Init.	Ref. Des.	Citation
	C14	Dao <i>et al.</i> , "Adhesion to fibronectin maintains regenerative capacity during <i>ex vivo</i> , culture and transduction of human hematopoietic stem and progenitor cells," <i>Blood</i> , 92:4612-4621, 1998.
	C15	Dao <i>et al.</i> , "FLT3 ligand preserves the ability of human CD34+ progenitors to sustain long-term hematopoiesis in immune-deficient mice after <i>ex vivo</i> retroviral-mediated transduction," <i>Blood</i> , 89:446-456, 1997.
	C16	DeZazzo <i>et al.</i> , "Involvement of long terminal repeat U3 sequences overlapping the transcription control region in human immunodeficiency virus type 1 mRNA 3' end formation," <i>Mol. Cell. Biol.</i> , 11:1624-1630, 1991.
	C17	Donello <i>et al.</i> , "Woodchuck hepatitis virus contains a tripartite posttranscriptional regulatory element," <i>J. Virol.</i> , 72:5085-5092, 1998
	C18	Dorrell <i>et al.</i> , "Expansion of human cord blood CD34(+)CD38(-) cells in <i>ex vivo</i> culture during retroviral transduction without a corresponding increase in SCID repopulating cell (SRC) frequency: dissociation of SRC phenotype and function," <i>Blood</i> , 95:102-110, 2000.
	C19	Dull <i>et al.</i> , "A third-generation lentivirus vector with a conditional packaging system," <i>J. Virology</i> , 72:8463-8471, 1998.
	C20	Feng and Holland, "HIV-I Tat Trans-Activation Requires the Loop Sequence Within Tar," <i>Nature</i> , 334(6178):165-167, 1988.
	C21	Gilmartin <i>et al.</i> , "Activation of HIV-1 pre-mRNA 3' processing <i>in vitro</i> requires both an upstream element and TAR," <i>Embo. J.</i> , 11:4419-4428, 1992.
	C22	Gossen and Bujard, "Tight control of gene expression in mammalian cells by tetracycline-responsive promoters," <i>Proc. Natl. Acad. Sci.</i> , 89:5547-5551, 1992.
	C23	Kafri <i>et al.</i> , "Sustained expression of genes delivered directly into liver and muscle by lentiviral vectors," <i>Nature Genetics</i> , 17:314-317, 1997.
	C24	Kohn <i>et al.</i> , "Toward gene therapy for Gaucher disease," <i>Hum. Gene Ther.</i> , 2:101-105, 1991.
	C25	Levenson <i>et al.</i> , "Internal ribosomal entry site-containing retroviral vectors with green fluorescent protein and drug resistance markers," <i>Human Gene Therapy</i> , 9:1233-1236, 1998.
	C26	Lewis and Emerman, "Passage through mitosis is required for oncoretroviruses but not for the human immunodeficiency virus," <i>J. Virology</i> , 68:510-516, 1994.

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INFORMATION DISCLOSURE STATEMENT — PTO-1449 (MODIFIED)



Form PTO-1449 (modified)

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Serial N .

10/010,081

List of Patents and Publications for Applicant's

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U.S. Patent Documents

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Foreign Patent Documents

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	C27	Marthas <i>et al.</i> "Viral determinants of simian immunodeficiency virus (SIV) virulence in Rhesus Macaques assessed by using attenuated and pathogenic molecular clones of SIVmac," <i>J. Virol.</i> , 67:6047-6055, 1993.
	C28	Mazurier <i>et al.</i> , "Rapid analysis and efficient selection of human transduced primitive hematopoietic cells using the humanized S65T green fluorescent protein," <i>Gene Ther.</i> , 5:556-562, 1998.
	C29	Miyoshi <i>et al.</i> , "Transduction of human CD34+ cells that mediate long-term engraftment of NOD/SCID mice by HIV vectors," <i>Science</i> , 283:682-686, 1999.
	C30	Mizushima and Nagata, "pEF-BOS, a powerful mammalian expression vector," <i>Nucleic Acids Res.</i> , 18:5322, 1990.
	C31	Naldini <i>et al.</i> , "Efficient transfer, integration, and sustained long-term expression of the transgene in adult rat brains injected with a lentiviral vector," <i>Proc. Natl. Acad. Sci. USA</i> , 93:11382-11388, 1996.
	C32	Naldini <i>et al.</i> , "In vivo gene delivery and stable transduction of nondividing cells by a lentiviral vector," <i>Science</i> , 272:263-267, 1996.
	C33	Naldini, "Lentiviruses as gene transfer agents for delivery to non-dividing cells," <i>Current Opinion in Biotechnology</i> , 9:457-463, 1998.
	C34	Ory <i>et al.</i> , "A stable human-derived packaging cell line for production of high titer retrovirus/vesicular stomatitis virus G pseudotypes," <i>Proc. Natl. Acad. Sci.</i> , 93:11400-11406, 1996.
	C35	Piacibello <i>et al.</i> , "Engraftment in nonobese diabetic severe combined immunodeficient mice of human CD34(+) cord blood cells after <i>ex vivo</i> expansion: evidence for the amplification and self-renewal of repopulating stem cells," <i>Blood</i> , 93:3736-3749, 1999.
	C36	Ramezani <i>et al.</i> , "Lentiviral vectors for enhanced gene expression in human hematopoietic cells," <i>Molecular Therapy</i> , 2:458-469, 2000.
	C37	Roe <i>et al.</i> , "Integration of murine leukemia virus DNA depends on mitosis," <i>Embo. J.</i> , 12:2099-2108, 1993.
	C38	Scharfmann <i>et al.</i> , "Long-term <i>in vivo</i> expression of retrovirus-mediated gene transfer in mouse fibroblast implants," <i>Proc. Natl. Acad. Sci. USA</i> , 88:4626-4630, 1991.

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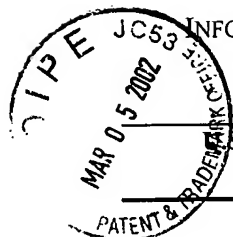
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See Page 1Other Art  
See Page 1

## Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

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	C39	Sutton <i>et al.</i> , "Human immunodeficiency virus type 1 vectors efficiently transduce human hematopoietic stem cells," <i>J. Virol.</i> , 72:5781-5788, 1998.
	C40	Sutton <i>et al.</i> , "Transduction of human progenitor hematopoietic stem cells by human immunodeficiency virus type 1-based vectors is cell cycle dependent," <i>J. Virol.</i> , 73:3649-3660, 1999.
	C41	Uchida <i>et al.</i> , "HIV, but not murine leukemia virus, vectors mediate high efficiency gene transfer into freshly isolated G0/G1 human hematopoietic stem cells," <i>Proc. Natl. Acad. Sci. USA</i> , 95:11939-11944, 1998.
	C42	Ueda <i>et al.</i> , "Expansion of human NOD/SCID-repopulating cells by stem cell factor, Flk2/Flk3 ligand, thrombopoietin, IL-6, and soluble IL-6 receptor," <i>J. Clin. Invest.</i> , 105:1013-1021, 2000.
	C43	Valsamakis <i>et al.</i> , "Elements upstream of the AAUAAA within the human immunodeficiency virus polyadenylation signal are required for efficient polyadenylation <i>in vitro</i> ," <i>Mol. Cell Biol.</i> , 12:3699-3705, 1992.
	C44	Valsamakis <i>et al.</i> , "The human immunodeficiency virus type 1 polyadenylation signal: a 3' long terminal repeat element upstream of the AAUAAA necessary for efficient polyadenylation," <i>Proc. Natl. Acad. Sci. USA</i> , 88:2108-2112, 1991.
	C45	Zufferey <i>et al.</i> , "Multiply attenuated lentiviral vector achieves efficient gene delivery <i>in vivo</i> ," <i>Nat. Biotechnol.</i> , 15:871-875, 1997.
	C46	Zufferey <i>et al.</i> , "Self-inactivating lentivirus vector for safe and efficient <i>in vivo</i> gene delivery," <i>J. Virol.</i> , 72:9873-9880, 1998.
	C47	Zufferey <i>et al.</i> , "Woodchuck hepatitis virus posttranscriptional regulatory element enhances expression of transgenes delivered by retroviral vectors," <i>J. Virol.</i> , 73:2886-2892, 1999.

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